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ABSTRACT

Intellectual functioning is the product of an interaction among a variety of biological, social, and personal experiential factors. The distribution of ability at all levels is dependent on the manner in which the individual has learned to cope with this relationship of forces. This adaptive ability to cope is part of intelligent behavior. The concept of intellectual functioning can be conceived of as five separate, but interacting, areas: the sensory-motor development of the individual, cognition, the rate of learning, adaptive behavior, and social awareness. These continuously interacting elements must be considered in judging and assessing intellectual levels in all persons, including those with the types of atypical brain growth and development associated with mental retardation and developmental disability. Research tasks in this area are noted. (JDD)

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Intelligence and Adaptive Behavior Revisited

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Intelligence and Adaptive Behavior Revisited

In January, 1969, there was symposium in the then American Journal of Mental Deficiency, which covered the blunt question of "what is mental retardation?" My contribution at that time, discussed among other elements, what an appropriate basis for classification system should take into consideration. I was particularly opposed to dicotomic population approaches and offered the proposition that all organisms are both physical and social and that nothing can interfere with one aspect without affecting the other. Everything relates, in a variety of ways, to everything else. Humans are all psychobiological organisms, and we all derive from some sort of a cultural, social background. Whatever we are, at this point, is a result of reciprocal interaction. To artificially break it apart and say that this is this, or that is that, becomes an argument in futility.

It becomes and even greater argument in futility if, when working with persons who present atypical patterns of growth and development, we try to base our classifications on traditional psychometric assessment and the I.Q. If we think only in terms of normal distributions as a basis for classification, and try to identify the person with mental retardation in terms of the reafication of the I.Q., we are really dealing with futility. We are not even sure if intelligence is distributed normally within the so called normal population.

Intellectual functioning is the product of an interaction between a variety of biological, social and personal experiencial factors. The distribution of ability at all levels is dependent on the manner in which the individual has learned to cope with this relationship of forces. This adaptive ability to cope is part of intelligent behavior. Today we would say that it is the force of which "drives" intelligent behavior.

The real measure of a classification system, must be based on how well it serves the individual being classified. If it is merely to provide a label or worse, if it fails to identify and thus keeps necessary services away from the individual, it must be considered a very false scheme. Data can be found to support a variety of such schemes, but most of them lack the vital test of relevancy to the functioning needs of specific individuals, in lieu of an artificial grouping based on means or other statistical symbols.

That is part of what I addressed almost 25 years ago. Looking at it now and trying to put some meat on those bones, we need to touch or retouch some of those points. We are certainly all biological and social organisms and the reciprocal relationship makes life possible. We have come to recognize that learning in humans begins at the latter part of the gestational development and that the baby, before birth, has already begun to acquire elements related to developing vestibular, otic, and optic systems, and the initial sensory phenomena surrounding them. We know from the work that has been done with the orienting reflex and fetal heart beat that this early learning of adaptive coping to the environment of the womb defines much of later development. The measurements of prenatal heartbeats indicate that when certain stimuli are introduced to the fetus, it responds and it responds in an orienting manner and it habituates.

These processes are part of expected growth through the perinatal period. The fetus goes through a lot of sensory habituation during that period. Errors can occur because of

environmental pressures in the womb (e.g. smoking, drugs, caffeine, alcohol, etc.) which may lead to agenesis or disgenesis in the brain itself. Such errors relate to the failure of the brain to function appropriately after birth. This whole developmental package, starting prenatally, is part of the intellectual development of the individual. This is why Hebb and Vygotsky both say that the timing of the damage has much more meaning than the actual nature of the damage. Thus the individual is not born a tabula rasa, but a an individual who already has a working sensory system. This is first and foremost a socially driven biological function, and it becomes the key or shall we say the unifying element that brings about the relationship between these various functions and intellectual development. To say that you have some individuals who have biomedical problems and other individuals who have social or psychological problems becomes very absurd, and it also becomes absurd to presume an all inclusive genetic frame of reference.

Going back a million years or so, we find that there has been a lot of continuity in human development. Before we had evidence of human development, animal development gave us a lot of the same type of continuity: two eyes looking forward, two ears one on each side, a mouth in front, a head on top or in front with a ratio of size and cranial vault in relationship with the size of the rest of the body, etc., etc. These were the factors that moved into and through eventual human development. Presumptive humans somehow evolved a short hip bone. We have no sound idea why a short hip bone evolved, but it was evidently a very necessary mutation. So one begins to define the process of evolution as a matter of inheritance plus social necessity.

We had animals that already had some humanoid features, one set of them showed up with a short hip bone, and we now have a new kind of social necessity, to function erect. If you have a short hip bone it is more comfortable to be erect. Being erect creates two limbs that don't have work and we have to make them work. We had to make work for them, mainly because we are such lousy animals. We don't run very fast, can't jump very high, don't have a good sense of smell, or sight or hearing when we compare with other animals. We had to survive and the only way we could was by adapting to our environment. Learning, at that point, how to cope with that environment. Learning how to develop an organization demanding complex social integration and the development of a functional language process and a culturally oriented symbolic system. All of these based on the social-emotional development of cognition to deal with the environment, to see what worked, and to learn from what worked. Obviously, a successful coping strategy was developed because we are all here today. These ancestors had physical features they inherited from other animals, with one main difference, a short hip bone. Over a number of generations, that became an inherited factor. But, being faced with a saber tooth tiger and figuring out how to handle it, became an adaptive factor. Thus, social historical experience helped decide how they were going to function within the environment, and what was going to emerge. The key to this intellectual functioning was how they coped with the natural and social demands of that environment, how they coped with the saber tooth tiger.

We are dealing with historical, social and cultural experiences which vary from person to person and area to area. This has a lot to do with previous learning, and the rate of that learning is an important part of the system. However, if we are going to talk about immediate learning, the mental age has nothing to do with it, except possibly as an indicator as to whether learning was proceeding at the same rate today as yesterday. Working with children, we cannot look at yesterday's rate of learning and assume that it

will be the same level today. They may have had breakfast yesterday, but not today. Things vary. Vygotsky's concept of learning experience is related to both the previous rate of learning (M.A.) and what can most readily, with teaching support be learned today. He calls this the measurement or the observation of "zones of proximal development". We talk about "hills and valleys". "Hills" are zones of proximal development. The area best demonstrated by the individual, at this point in time, where a growing level of ability exists. The area where one is best able to train the individual and expect further learning. We do not have fixed periods when things have to happen nor if we miss phases, are we stuck with the situation. We probably have phases as Piaget described them. Werner looking at it from his frame of reference, which is almost identical to Vygotsky, certainly found that phases existed, but not as fixed or invariate. An individual doesn't have to have crawled in order to walk. There is no way of talking about normal distributions of proximal development even when growth proceeds according to usual expectations. There is certainly no way to talk about normal distributions when we are dealing with atypical development. You have to take each person and observe their individual function and individually determine the dimensions of their zones and their priorities for change.

Using the Adaptive Behavior Scale for Infants and Early Childhood, we derived some very interesting information. Three or four of our people had babies at about the same time. They had normal-to-bright babies (obviously, they're children of psychologists) and they would call me and complain that this wonderful baby, who's doing all of these marvelous things, with most of them talking first, were not according to the ABSI, "developing physically", and they'd ask "What's wrong with my baby?" Of course, the answer was very clear. There was nothing wrong with the baby. Babies do not do two things at once. When it is learning to talk, it is not going to spend much energy walking, because walking is also an adaptive behavior. The baby has to think about walking. Every step the child takes is a matter of tremendous, cognitive activity. If they are doing that, they are not going to talk. Taking this other group who are on the other track, where they are busy talking, they don't have the resources to put that kind of energy into walking. Once they reach the point of talking without thinking, (which comes all too soon for most of us) they can put their energy into physical development. The two behaviors become habituated and the child will talk and walk. So I belayed the fears of these psychology students and they learned how to read adaptive profiles. This is a functional, accidental experiment. Most of the good research people do is by accident. It was an accidental experiment in proximal development. The proximal development for these babies was talking. When they got the talking under their belt, they had time and energy to get into walking, and they walked. That was their "saber tooth tiger".

Thus, we see that this concept of "intellectual functioning", (Luria's "higher human mental activity") can functionally be conceived of as five separate, but interacting areas:

1. The Sensory-Motor Development of the individual. Integrating the available biological inheritance and social stimulation, even before birth.

2. Cognition, coordinating the conditioning and opening of brain channels through the reception of external (social-experiencial) stimuli, the mediation of perceptions (accommodation and assimilation), and the integration of apperception to insure conscious and voluntary responses.

3. The Rate of Learning, the quantity and speed of the acquisition of human lore.

4. Adaptive Behavior, the quality of coping with the natural and social demands of the environment.

5. Social Awareness, the understanding of the reciprocal interaction of differing ecological systems on both the intra and inter personal plane.

I have presented a model of continuously interacting elements for judging and assessing intellectual levels in all persons including those with the types of atypical brain growth and development associated with various levels of mental retardation and developmental disability. The scientist-practitioner in our field, has the challenge to ask many questions that are rarely asked, because they do not fit the usual research paradigms. Such questions, for example, as:

Are there relationships between specific errors in sensory-motor development and expressed behaviors of handicapped persons?

How can one convert and broaden, "splinter" type learning into more generalized patterns?

How can a person's "instead behaviors" be modified to ameliorate both cognitive development and adaptive behaviors?

These are "off the cuff" examples of the research tasks facing us. Research, not on broad ambiguous labels, but rather on the processes within and between persons whereby learning is achieved. They are a challenge, and they require that we have the internal fortitude to throw off the I.Q., and other traditional modes of measurement. Recognizing that when we witness phenomena that are contrary to test or statistical results-the tests and statistics are wrong.

References

Berntson G.G., Ronca, A.E., Tuber, D.S., Boysen, S.T., and Leland, H., (1985), Cardiac Reactivity and Adaptive Behavior, American Journal of Mental Deficiency, 89, (4), 415-419.

Leland, H., (1969), The relationship between "Intelligence and mental retardation, American Journal of Mental Deficiency, 73, (4) 533-535.

Leland, H. and Smith, D.E., (1974), Mental Retardation: Present and Future Perspectives, Worthington, Ohio: Charles A. Jones.

Leland, H. and Shoaee, M. (1980), Adaptive Behavior Scale for Infants and Early Childhood, Austin, TX: Pro-Ed (In Press).

Luria, A.R., (1980), High Cortical Functions in Man, 2nd Ed-Rev., NY: Basic Books Publications, Inc.

Vygotsky, L., (1986), Though and Language, Cambridge, MA: The MIT Press.

Wersch, J.V., (1985), Vygotsky and the Social Formation of Mind, Cambridge, MA: Harvard Univ. Press.